ENVIRONMENTAL ANALYSIS OF THE SUGAR INDUSTRY PRESS MUD OF NORTH KARNATAKA, INDIA

GAMAL JUMA ABOULGASEM1*, ROOPA BELURKAR2 & MALLIKARJUN S YADAWE3

1Department of Chemistry Faculty of Science El Alejelat, Zawia University Libya
2Parvatibai Chowgule College of Arts & Science (Autonomous), Gogol, Margao, Goa
3Karnataka State Akkamahadevi Womens University Vijayapur, India

ABSTRACT

Press the mud product from the sugar industry. For every 100 tons of sugar cane is crushed about 3 tons of media mud cake left behind as a product. It is used as a soil restorative agent and soil conditioner. Crude publishing mud for the sugar industry was collected in ten sugar mills in Northern Karnataka India. The present study was performed to analyze physical and chemical properties such as pH, electrical conductivity, moisture content, total carbon content, nitrogen, phosphorus, potassium and moisture.

KEYWORDS: Press Mud, Sugar Industry, Nitrogen, Phosphorus & Potassium Etc

INTRODUCTION

India is the second largest sugar producer. According to the growth rate, Maharashtra is one of the largest sugar producing areas in India. The agricultural sector is a major player in developing countries such as India and about 60-70 percent of the population depends on the agricultural sector in India. Bagasse, molasses & mud presses are the waste products from the sugar industry that produce and handle this large amount of safe and waste-disposal waste products. Due to the high nutrient content of the compression mud is also required at Soil-Nutrition so it is important to know the composting process to use compression mud as composting material. Pressure compound for industrial sugar mills produced 3% by sulphonation and 7% in carbonation factories from the extraction of sugarcane juice [1]. Thick colloids include reed wax, albinoid, inorganic salts, soil particles and mineral elements in various amounts [2,3]. It prevents soil erosion, cracking and cracking, regulates soil pH, improves water flow and improves the normal growth of bacteria and bacteria in the soil. It is also used as a soil reclamant and soil conditioner [4]. Retric pressure is a good source of biogas as it contains 5-15% sugar. Dry machine mortar can be used to generate energy as it contains a high percentage of combustible materials [5]. More recently the widespread use of publishing mud in bio-composting in the treatment of used wastes from waste [6]. Due to sugar and other organic matter, mud presses emits a foul odor that causes pollution. Media mud, in many places, is used as fuel. The possibility of using a combination of filter cake and bagasse in various proportions has been investigated using the mixture as fuel for boilers in steam production [7].

MATERIALS AND METHODS

Samples of media mud are collected at sugar mills in North Karnataka between October and March 2020, as they are only available during the sugarcane harvest. Samples were stored in a cool room, stored at 4°C, prior to analysis.
and further testing. Samples were sundried and freed from contamination. The physicochemical properties of compression mud include pH, electrical conductivity, moisture content, total nitrogen, phosphorus, potassium, organic carbon, C: N ratio. All procedures have been followed from [8] here.

RESULTS AND DISCUSSIONS

Advantages of using sugarcane mortar for soil use its low cost, slow extraction of nutrients, availability of tracking material, high water handling capacity and compaction structures, but it also reduces soil fertility due to its accumulation [9]. The physicochemical parameters of the press mud are given in Table No. 1.

Table 1: Physico-Chemical Characteristics of Press Mud

<table>
<thead>
<tr>
<th>S. No</th>
<th>Parameters</th>
<th>pH</th>
<th>Electrical Conductivity</th>
<th>Moisture Content</th>
<th>Total Organic Carbon</th>
<th>Total Nitrogen</th>
<th>Total Phosphorus (as P2O5)</th>
<th>Total Potassium (as K2O)</th>
<th>C/N ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nandi Sahakari Sakkare Karkhane Niyamit, Vijayapura</td>
<td>8.5</td>
<td>1.508</td>
<td>70.3</td>
<td>38</td>
<td>1.5</td>
<td>2.9</td>
<td>3.5</td>
<td>0.3</td>
</tr>
<tr>
<td>2</td>
<td>Renuka Sugar Factory Athani</td>
<td>8.8</td>
<td>1.483</td>
<td>59.3</td>
<td>50</td>
<td>3.5</td>
<td>2.5</td>
<td>5.5</td>
<td>0.1</td>
</tr>
<tr>
<td>3</td>
<td>Bheemashankar sugar factory Dhubilakshed</td>
<td>7.5</td>
<td>0.41</td>
<td>72.5</td>
<td>32</td>
<td>4</td>
<td>1.9</td>
<td>7.9</td>
<td>0.0</td>
</tr>
<tr>
<td>4</td>
<td>Jamakhandi Sugar Factory Padasalagi</td>
<td>7.9</td>
<td>0.506</td>
<td>65.4</td>
<td>58</td>
<td>2.5</td>
<td>2.5</td>
<td>6.5</td>
<td>0.3</td>
</tr>
<tr>
<td>5</td>
<td>Basaveshwar Sugar Facory Karjol</td>
<td>8</td>
<td>0.357</td>
<td>48.9</td>
<td>48</td>
<td>2.6</td>
<td>3.5</td>
<td>8.2</td>
<td>0.1</td>
</tr>
<tr>
<td>6</td>
<td>Prabhulingeshwar Sugar factory Siddapur</td>
<td>6.9</td>
<td>0.562</td>
<td>59.5</td>
<td>62</td>
<td>3.2</td>
<td>1.8</td>
<td>6.7</td>
<td>0.1</td>
</tr>
<tr>
<td>7</td>
<td>Nirani Sugar Factory Mudhol</td>
<td>8.3</td>
<td>0.552</td>
<td>68.7</td>
<td>54</td>
<td>3.4</td>
<td>4.8</td>
<td>2.8</td>
<td>0.1</td>
</tr>
<tr>
<td>8</td>
<td>Bilagi Sugar Factory Badagandi</td>
<td>8.2</td>
<td>0.41</td>
<td>56.8</td>
<td>43</td>
<td>2.1</td>
<td>1.6</td>
<td>5.6</td>
<td>0.1</td>
</tr>
<tr>
<td>9</td>
<td>Athani Sugar factory Kempawad</td>
<td>7.8</td>
<td>0.506</td>
<td>49.5</td>
<td>55</td>
<td>1.5</td>
<td>1.7</td>
<td>6.6</td>
<td>0.3</td>
</tr>
<tr>
<td>10</td>
<td>Harugeri Sugar Factory</td>
<td>8.2</td>
<td>1.636</td>
<td>72.6</td>
<td>64</td>
<td>2.9</td>
<td>2.8</td>
<td>4.2</td>
<td>0.1</td>
</tr>
</tbody>
</table>

pH OF Press Mud

The values of the physicochemical parameters are shown in Table 1. The current study shows that the pH of the compression mud varied from 6.9 to 8.8. Pressure mortar has the ability to reduce soil pH slightly [10]. The green press has analyzed and found that the pH of 6.25 in this list of micro-organisms continues but below pH 6 the microorganisms are not supported. It prevents soil erosion, cracking and cracking, regulates soil pH, improves water flow and improves the normal growth of bacteria and bacteria in the soil. It is also used as a soil replant and soil conditioner [11].
Electrical Conductance

Electrical performance varied from 0.356 dS / m to 1.637 dS / m. Increased retention of other samples may be due to a matter that prefers CO2 accumulation and releases large amounts of salt into a solution that leads to higher electrical conductivity in the media mud [12].

Moisture Contents

Sugarcane mud is a hydrophilic organism that is able to store more water than sandy soils. This material has a relative humidity of 48.9 to 72.6, so with its amorphous nature, this material can increase the ability of the sandy coastal sand to hold water. The addition of compressive mud compost increases soil moisture which avoids watering the plants frequently.

Natural Carbon

The percentage of live carbon and live matter of the publishing mud was 38.50, 32, 58, 46, 54, 43, 55 and 64% respectively. Lack of organic carbon reduces the ability to retain soil nutrients and reduces soil fertility [13]. Due to the high biological content of organic carbon and organic matter press mud can act as a good source of organic fertilizer [14] another plant source of nutrients and soil is encouraging [15].

Nitrogen

When production is industrialized, synthetic nitrogen fertilizers used in combination with new high yielding seeds have helped drive the Green Revolution and significantly boosted agricultural production worldwide from the late 1960s onwards. During this time, Mexico was able to become self-sufficient in producing wheat, as did India and Pakistan, which were on the brink of starvation. In today's intensive farming systems, synthetic nitrogen fertilizers have become increasingly important. Globally, companies currently produce more than 100 million tons of this product annually, and the Food and Agriculture Organization of the United Nations predicts that demand will continue to grow steadily, especially in Africa and South Asia. Media mud recorded nitrogen content from 1.5 to 4.0%.

Phosphorus

Phosphorus availability in the soil is highly variable because it depends on the composition of the mineral soil, organic matter and the rate of decay, local climatic conditions and soil structures. The provision of P in the early stages of vegetable growth strengthens its reproductive and seed formation components. It can also speed up the ripening of the plant and is said to improve resistance to certain fruits, vegetables and fodder diseases. The phosphorus content in current media mud samples varied from 1.7 to 4.8%. Its deficiency will lead to a change in the color of the old leaves and the edges of the leaves [18, 19].

Potassium

Potassium percentages ranged from 2.8 to 8.2%. It is found in the soil in a variety of ways. K in a soil solution equal to the K+ variable is difficult to distinguish from it, the K+ mutation affected by the clay content, the magnitude of the mineral decomposition and the amount of fertilizer [20, 21] is also a potassium compound in the soil.

C / N Ratio

The carbon and nitrogen ratio affects the speed of the composting process and the average C: N average ratio of total carbon to total nitrogen in the compost. The rate at which organic matter decomposes during composting depends largely
on the C: N ratio of the material used. During composting, microorganisms use carbon as a source of energy and nitrogen for cell formation [22].

CONCLUSIONS

Compost in sugarcane mud compression can be used as a living fertilizer. The result of this analysis shows that the media contains a sufficient amount of material large and small. We, therefore, conclude that it has better amounts of compost due to the addition of Nutrient compounds and inoculation of Trichoderma, Aspergillus Niger, Pleurotus, and Phaenerochaete microorganism. This compost is rich in chemical composition and chemical formulation used as bio-compost for the agricultural field to improve the nutrient balance of the soil.

THANKS

I would like to extend my sincere thanks to Dr. Mallikarjun S Yadawe Karnataka State Akkamahadevi Womens University, Roopa S Belurkar Parvatibai Chowgule College of Arts & Science (Autonomous), Gogol, Margao, Goa India for receiving his invaluable guidance and constant encouragement during the process of making my paper. Thanks also to all the teaching and non-teaching staff of the Faculty of Science Alejelat of Libya, the Libyan Department of Chemistry who assisted me directly or indirectly in completing this paper.

REFERENCES
